Overview

For more than forty years, *the Goddard Space Flight Center (GSFC) has been at the forefront of the National Aeronautics and Space Administration (NASA) scientific research and exploration program, through its achievements helping lead the world to new knowledge about the Earth and the universe. The Center started in 1959 with a few score Naval Research Laboratory personnel, and has grown to a diverse workforce of many thousand of civil servants, contractors, and partners around the world.*

One of nine NASA centers, Goddard is a national leader in the studies of Earth and space science, conducting a program of world-class research, cutting-edge facilities and equipment, and advanced technology. From astronomy to planetary geology, from biodiversity to oceanography, researchers use data from spacecraft, balloons, sounding rockets and comprehensive ground-based field campaigns to make new discoveries about the birth and evolution of the universe, the complex interactions between our sun and the Earth, and the natural and human-induced causes of change on the Earth's long-term climate.

We Revolutionize knowledge of the Earth and the Universe
through scientific discovery from space to enhance life on Earth.

– Goddard's Vision Statement

The focus of this Master Plan, Goddard's Greenbelt site serves about 7,600 scientists, engineers, project managers, and support personnel spread across two square miles in the suburbs of Washington D C. In addition, Goddard includes the Wallops Flight Facility on Virginia's Eastern shore, the Goddard Institute for Space Studies in New York City, the Independent Verification and Validation Facility in Fairmont, West Virginia, and a series of smaller research and tracking facilities around the globe. Goddard has many public and private partners, including the Space Telescope Science Institute at the Johns Hopkins University in Baltimore, Maryland.

In recent years, Center leaders have embarked on a program of strategic change. Coordinating with the Agency's strategic planning, Goddard revised its vision, mission, and goals. Soon it reorganized its most crucial resource-people-to help it achieve these new objectives, and it began a long-range planning effort to link facilities choices to its mission forecasts. After forty years in existence, Goddard Greenbelt facilities (buildings, roads, utilities, fences, and land use) can no longer responsibly meet the projected needs. Mission success would be at unacceptable risk without a comprehensive plan for renewal. A Facilities Master Plan is such a comprehensive, integrated plan to address key mission requirements over the next twenty years.

This Master Plan is a framework for making decisions about future facilities. It explains the relationship between the Center's work and its facilities needs, and proposes what its leadership believes is the most efficient and effective set of choices for adapting facilities to a dynamic mission environment. It is an ongoing process to identify and forecast future facility development and redevelopment.

Missions and Capabilities

Contributing to National Priorities

NASA's Strategic Plan categorizes its mission into five principal enterprises, or "business lines": Space Science, Earth Science, Biological and Physical Research, Human Exploration and Development of Space, and Aerospace Technology. Each enterprise has described its work in its own Strategic plan, detailing the necessary research and development program goals and assigning general responsibilities to specific Centers. Goddard has several "core competencies" or principal areas of responsibility:

Earth Science: Goddard plays a major role in the new interdisciplinary field of Earth Systems Science. Research in this area advances understanding of the Earth as an environmental system by determining how its components have developed, how they interact with one another, and how they evolve on various time scales. This will enable Earth scientists to quantify the practical impacts that both natural and human activities will have on the Earth's resources during the next decade and over the next century.

Space science: Goddard seeks answers about how the universe formed, what it is made of, how its components interact, and how it evolves. The Center also will contribute to the quest to learn how stars and planetary systems form and evolve. We will continue to take part in determining the nature of the Sun's interaction with its surroundings. Similarly, we will work with others to discover the properties of interplanetary space as well as the plasma environments of the planets.

Enabling technologies: Goddard plans and coordinates technological research and development both within the Center and with external partners and serves as a catalyst for forming teams among academic, Government, and commercial concerns to draw on the best capabilities of each. We transfer the technology that is developed to the private sector to strengthen the national economy.

To succeed in these activities, Goddard Space Flight Center has developed expertise in program and project management, systems and discipline engineering, spacecraft and instrument manufacture, and other specialized capabilities necessary to place scientific instruments into space, retrieve and distribute data, and advance knowledge of space and the Earth. The Center partners with industry, academia, and other government organizations in the United States and abroad to ensure that the best capabilities anywhere participate in NASA's vision.

NASA is an investment in America's future. As explorers, pioneers, and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth.

– NASA 2000 Strategic Plan

Plan Objectives

Objectives of the Process

A successful master planning process affords the Center several benefits:

Enabling Operational Change: Ensure that the Center's management and facilities adapt to keep pace with the rising rate of change in the mission, which evolves in step with advancement in technology.

Stewarding Facilities Resources: Ensure that facilities are managed in a safe, responsible, efficient, reliable, cost effective manner conveniently summarizing past, present, and future mission and facilities.

Coordinating with Stakeholders: Ensure that the proposals in the Plan are fully coordinated with all those with interests in the Center's future, including mission customers, the workforce, partners, and the external community.

Objectives of Center Leadership

The Facilities Master Plan includes many interrelated proposals to enable the Center to reach its objectives. The need for change in the physical environment offers a special opportunity for Goddard Space Flight Center to think and plan creatively about the constituent parts of a vital and vigorous organization. The creative process starts with translating the GSFC Mission Objectives, provided by Center leaders, into statements of how facilities could change in response. These "translations" summarize Goddard leadership intents for a successful Facilities Master Plan:

Safety: Avoid unnecessary risk to people and mission.

Quality: Ensure that facilities are the best fit for activities.

Efficiency: Use buildings and services to the fullest.

Unified Campus: Enable workforce to work together more effectively.

Partners: Enable GSFC to work closely with strategic partners.

Building on these Facilities Objectives, the Center recorded its program of needs, current facilities conditions, and ideas for how to change its buildings, roads, utilities, and land use. The key facts and choices are recorded in the Plan so they are available for those interested in understanding and helping to refine the Plan. Careful study of how these proposals would affect the environment was performed, and proposals for how the Center can manage its commuting patterns to reduce area roadway congestion are included. The intent is to make proposals that respect the interests of all stakeholders, including mission customers, the work force, patners, and the external community.

Key Facts

Agency: National Aeronautics and Space Administration

Center: Goddard Space Flight Center

Site: Greenbelt

Location: Prince George's County, Maryland

GSFC: http://gsfc.nasa.gov

Masterplan: http://gsfc-facilities.gsfc.nasa.gov

Greenbelt Site

Land area in acres	*Owned*	*By Permit*	*Total*
East and West Campuses	848		848
Parkway Interchange	23		23
Pond north of Building 29		3	3
Area 100		28	28
Area 200		120	120
Area 300 and Area 400	Combined 250		250
Total land area in acres	**1121**	**151**	**1272**
Facilities space in Kgsf	***Current***	***Plan***	***Ceiling***
Current GSFC facilities	3,424	1,753	1,753
Proposed new GSFC facilities		1,184	1,584
To be reassigned to partners		991	1000
Total facilities space in Kgsf	**3,424**	**3,928**	**4,337**
Change in number		511	920
Change in percent		15%	27%
Site population	***Current***	***Plan***	***Ceiling***
W/in GSFC Security	7,600	5,800	6,800
Partnering and Outreach Zone	0	1,950	1,950
Total	**7,600**	**7,750**	**8,750**
Change in number		150	1,150
Change in percent		2%	15%
Parking	***Current***	***Plan***	***Ceiling***
Ratio of spaces per person	0.97	0.90	0.90
Change in ratio		-7%	-7%
Number of spaces	**7,392**	**6,975**	**7,875**
Change in number		-417	483
Change in percent		-6%	7%

Principle Features of the Plan

To guide Center facilities over the next twenty years, the planning process incorporates analyses of space utilization, mission trends, and existing facilities conditions and results in a "site development plan." Principle features of these proposals:

Land Use:

Enhance mission effectiveness and increase campus efficiency by organizing site activities in a safe, reliable, efficient, attractive, and environmentally sound manner:

- Streamline operations by consolidating major activity groupings into five "neighborhoods", each with a distinct character and shared services
- Strengthen overall teamwork by interconnecting all activities across the site, even across the divide caused by the current route of Soil Conservation Road
- Enhance external working relationships by designating an area for partnering activities, and in so doing reuse facilities assets that no longer fit NASA needs
- Protect and enhance woodlands, wetlands, and other natural site features by reforesting and by consolidating activities in already-developed areas.

Circulation and Access:

Streamline and clarify movement patterns of all types across the entire campus:

- Maintain easy public access across the site and improve security by rerouting Soil Conservation Road around a consolidated GSFC security perimeter
- Consolidate site access for employees and visitors to a few well-placed entries, easing traffic access while streamlining security
- Interconnect each gate with major workplaces via a clear, well marked "loop road", substantially reducing the total roadway area needed
- Maximize walking and cycling by redeveloping the middle of the site to include common services and amenities, and by providing convenient, attractive paths
- Lower the near-term ratio of parking per employee by consolidating site parking, and reduce it further as changes help alleviate staff reliance on automobiles during the workday.

Building program:

Provide facilities that efficiently meet changing mission quality, quantity, and configuration needs by renewing some and removing others to reuse key sites:

- Support a somewhat smaller, more team-oriented NASA workforce with somewhat less space, but of higher quality than is generally available today
- Enable mission change by providing enough flexibility within the Plan to support somewhat expanded or varied activity
- Start the changes at mid-site by building a new Space Science and Commons neighborhood where low-value institutional support buildings now stand.

Realizing the Plan

Implementation Strategies:

Create a more efficient, equitable, and environmentally sound workplace by integrating sustainable design practices into all elements of the campus Plan:

- Optimize relationships by involving all stakeholders (mission customers, workforce, partners, and neighbors) in planning processes
- Renew and reuse facilities where possible, building new only when it is clearly more efficient, and focus building within developed areas of the site
- Develop facilities and infrastructure to “lie lightly on the land”, consistent with life cycle cost assess ment and best management practices
- Limit the environmental impacts of autos on our site and on crowded area roadways by creating a workplace compatible with commuter alternatives to driving to work alone

Funding the proposals in the Plan:

Because NASA develops budget proposals about seven years in advance, many of the projects to implement this plan are already for funding. The priority order of implementing proposals is clearer for early proposals, and fuzzier later in the twenty-year plan ning horizon. Conditioned on Master Plan approval, funding plans are in place for several Master plan elements over the next few years.

Community Involvement in the Plan:

NASA requires that Centers prepare Facilities Master plans. The National Capital Planning Commission, the regional planning body for the Washington metropolitan area, also requires that Federal installations prepare and submit project and facilities plans. Goddard coordinates extensively and routinely with the external community, including other federal, State and local authorities and residential and commercial neighbors. Inquiries and comments are welcome at any time by contacting:

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Code 221
NASA/Goddard Space Flight Center
Greenbelt, MD 20771
Telephone: 301-286-9952

Sustaining and Renewing the Plan:

To stay relevant, this Plan must adapt. When new, it reflects its designers, but in time it evolves to new circumstances. Soon it needs changes, and eventually, replacement. Facilities planners reconsider the plan periodically to keep it relevant to the times.

Structure of the Plan

The Master Plan report is organized to cover topics in the general order that planners consider them as they develop the Plan:

Who, why and how?	Chapter 1:	**The Planning Context**
Where are we today?	Chapter 2:	**Goddard Today: An Analysis of Existing Resources**
Where are we headed?	Chapter 3:	**A Campus Framework**
What is proposed?	Chapter 4:	**Implementing the Future**
How would we arrive?	Chapter 5:	**A Transportation Management plan**

An environmental assessment accompanies the Master Plan. Broad in scope, the GSFC Environmental Assessment studies and records the potential consequences that could occur if all proposals in the Plan were implemented. It includes background information for reference.